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# Two New Species of Thyasidae (Acarina) from Nikko National Park, Japan*

*With 3 Text-figures*

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ABSTRACT New species of two genera new to Japan are described: *Japonothyas ornatus* and *Panisopsis* (*Panisoides*) *orientalis*. Both species show close affinities with the common cool-water Holarctic mite fauna.

The streams and waterfalls of Nikko National Park are just now being investigated for water mites. These habitats support many forms new to Japan. Because they are a part of a widespread Holarctic fauna of springs and waterfalls, these new discoveries add important zoogeographic information which proves that all the major groups of the Thyasidae are present in Japan.

## Genus *Japonothyas* gen. nov.

Genotype: *Japonothyas ornatus* sp. nov.

*Generic diagnosis* Pre- and postfrontalia, dorsocentralia 1 and postocularia fused into a dorsal shield bearing 2 setae. Median eye obscure, not pigmented. Lateral eyes encapsulate, without long apodemes. No free dorsocentralia. Dorsolateralia 2–4 each fused with a dorsocentralia. Dorsocentralia 5 fused medially. A supernumerary mid-dorsal circular sclerite present. Three pairs of genital acetabula. Genital valves with 2 setae anterior to the first acetabulum. The two terminal acetabula exposed posterior to the genital valves.

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### *Japonothyas ornatus* sp. nov.

*Male* Body 0.73 to 0.91 mm long by 0.48 to 0.69 mm wide. Dorsal shield 0.27 to 0.34 mm long by 0.29 to 0.35 mm wide. Central sclerite 0.09 to 0.14 mm long by 0.10 to 0.14 mm wide. Fused dorsocentralia 5 0.19 to 0.25 mm long by 0.27 to 0.36 mm wide.

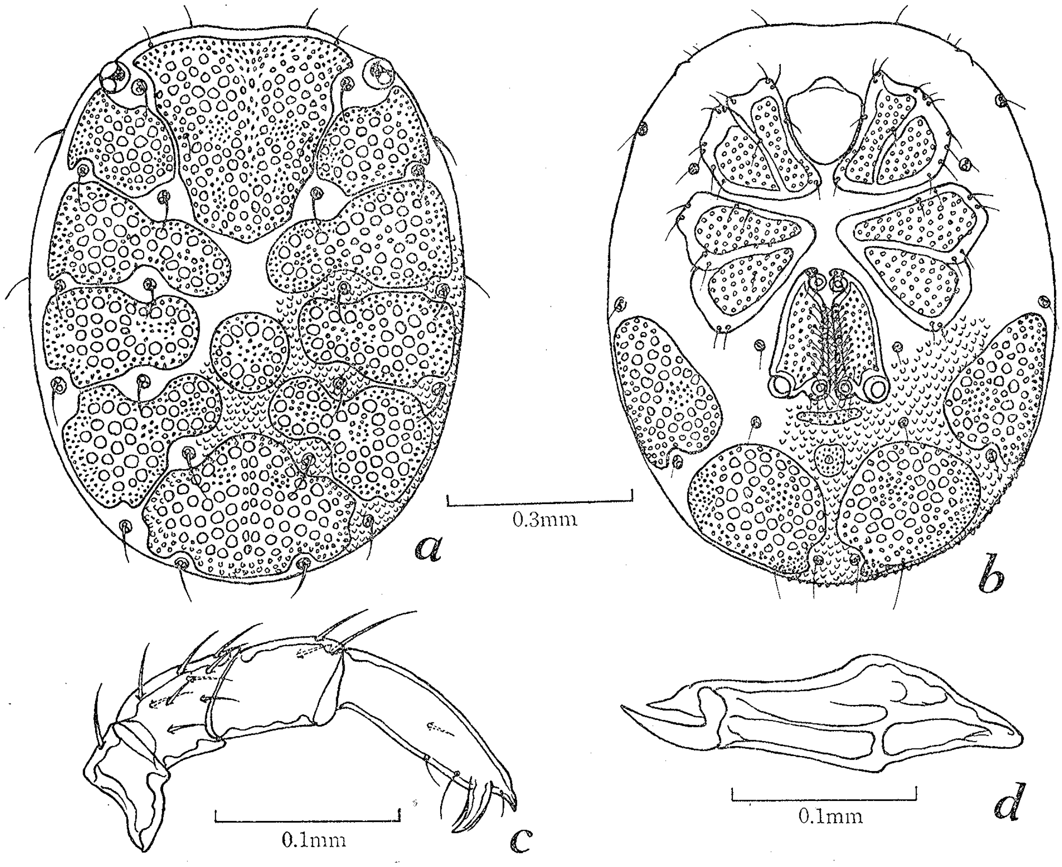

Fig. 1. *Japonothyas ornatus* gen. et sp. nov., male: a, dorsal aspect; b, ventral aspect; c, right palp; d, chelicera.

Preocularia just anterior to dorsal shield, postocularia small and in dorsal shield. All glandularia free. Dorsolateralia expanded so as to touch each other in older individuals. Apodemes of the eye very small. Interocular distance

| Segment | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Leg I | 60 | 90 | 54 | 72 | 90 | 108 |
| II | 60 | 102 | 66 | 90 | 102 | 120 |
| III | 60 | 96 | 66 | 96 | 102 | 126 |
| IV | 120 | 90 | 78 | 162 | 108 | 108 |

| Palpal segment | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Length, extensor surface | 40 | 90 | 50 | 120 | 33 |
| Maximum width | 50 | 54 | 48 | 36 | 15 |

0.40 mm. Two large ventralia. First genital acetabulum enclosed by an anterior arm of the genital valve that bears two setae. The other two acetabula exposed posterior to the genital valve. Genital valves 0.17 to 0.20 mm long by 0.07 to 0.09 mm wide, bearing numerous irregularly arranged setae on the median margin. Excretory plate small 0.06×0.06 mm. Legs relatively short with heavy setae. Coxal setae usually number 5-6-6-4. Length of leg segments in $\mu$:

Palp chaetotaxy usually 1-6-3-3, segment dimensions in $\mu$:

*Female* No secondary sexual differences in the shape or size of sclerites. Genital valves 0.20 to 0.25 mm long by 0.08 to 0.09 mm wide with a single row of setae along the median margin.

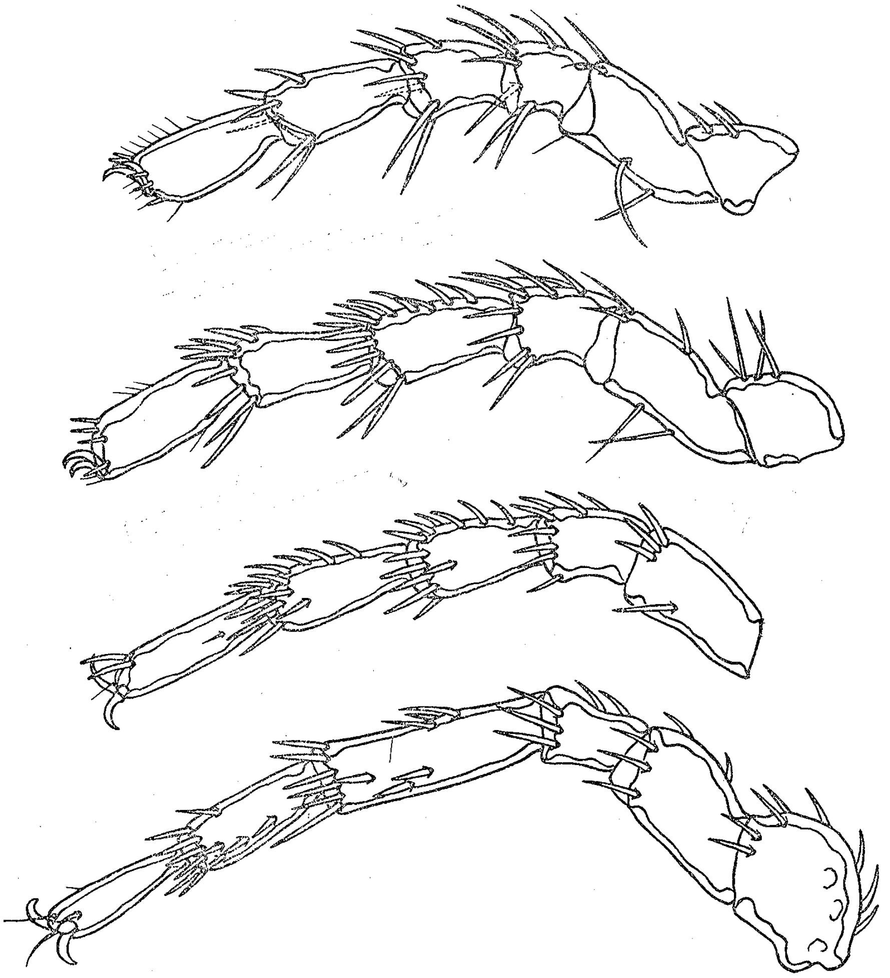

Fig. 2. *Japonothyas ornatus* gen. et sp. nov., male: Legs I-IV from top to bottom, anterior surface.

*Specimens* Seepage area (10–15°C) along the Daiya River just above the bridge Sakaébashi, 960 meters above the sea-level, Nikko National Park. July 29, 1966, 1 specimen (R. Mitchell leg.), August 14, 1966, 52 specimens (R. Mitchell leg.), November 18, 1966, 4 specimens (T. Imamura leg.) Study series consisted of 4 males (Nov. 18, 1966), 7 males (Aug. 14, 1966) and 13 females (Aug. 14, 1966). Holotype: Male (Nov. 18, 1966), Preparat No. 1665 in the collection of the Biological Institute, Ibaraki University. Paratypes: 10 males and 13 females to be divided between the Biological Institute, Ibaraki University and the Chicago Natural History Museum.

*Remarks* This is the only instance of a supernumerary plate appearing in the Thyasidae and the plate appears to be independently evolved, not due to secondary division of a dorsocentralia. Unfortunately accounts of musculature published by Mitchell (1957) give no aid in identifying the sclerite. Each dorsocentralia is known to serve as an attachment for a single muscle and all these attachment surfaces are identifiable in the median lobes fused with dorsocentralia 2–4. The median supernumerary sclerite also has a pair of muscle attachments and these cannot be identified. This problem of sclerite identification can only be resolved through further studies of musculature. The supernumerary plate and the fusion of dorsocentralia 2–4 with dorsolateralia are the features distinguishing this new genus from the *Panisus*.

### *Panisopsis* (*Panisoides*) *orientalis* sp. nov.

*Male* Body 0.64 to 0.78 mm long by 0.53 to 0.61 mm wide. Dorsal shield, consisting of dorsocentralia 1 fused with pre- and postfrontalia and the postocularia, 0.20 to 0.23 mm long by 0.19 to 0.23 mm wide. Preocularia absent. All other dorsalia relatively large but never fused with each other. Interocular distance 0.31 to 0.35 mm. Eyes with small internal apodemes. Three pairs of very small supernumerary sensory setae, one behind the lateral eyes, one anterior to dorsocentralia 2, and one at the lateral margin of dorsocentralia 4. The anterolateral ventralia small and weak, posterior ventralia large and heavily sclerotized. Three genital acetabula measuring 0.03, 0.03, 0.05 mm. Genital valves extend anterior to the first acetabulum and bear 5 long curved setae, median margin gently curved bearing a row of about 20 setae. The third acetabulum extends over the posterior extension of the genital valve on which three fine setae insert. Genital valves 0.150 to 0.180 mm long by 0.05 to 0.07 mm wide. Coxal setae vary slightly in position and number. The usual formula: 7–9–8–6. Length of leg segments in $\mu$:

| Segment | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Leg I | 60 | 150 | 80 | 90 | 100 | 130 |
| II | 60 | 140 | 70 | 100 | 120 | 150 |
| III | 50 | 130 | 80 | 120 | 120 | 150 |
| IV | 160 | 150 | 100 | 150 | 120 | 160 |

Palp chaetotaxy usually 1–5–1–1 and segment lengths in $\mu$ 50, 80, 70, 120, 30.

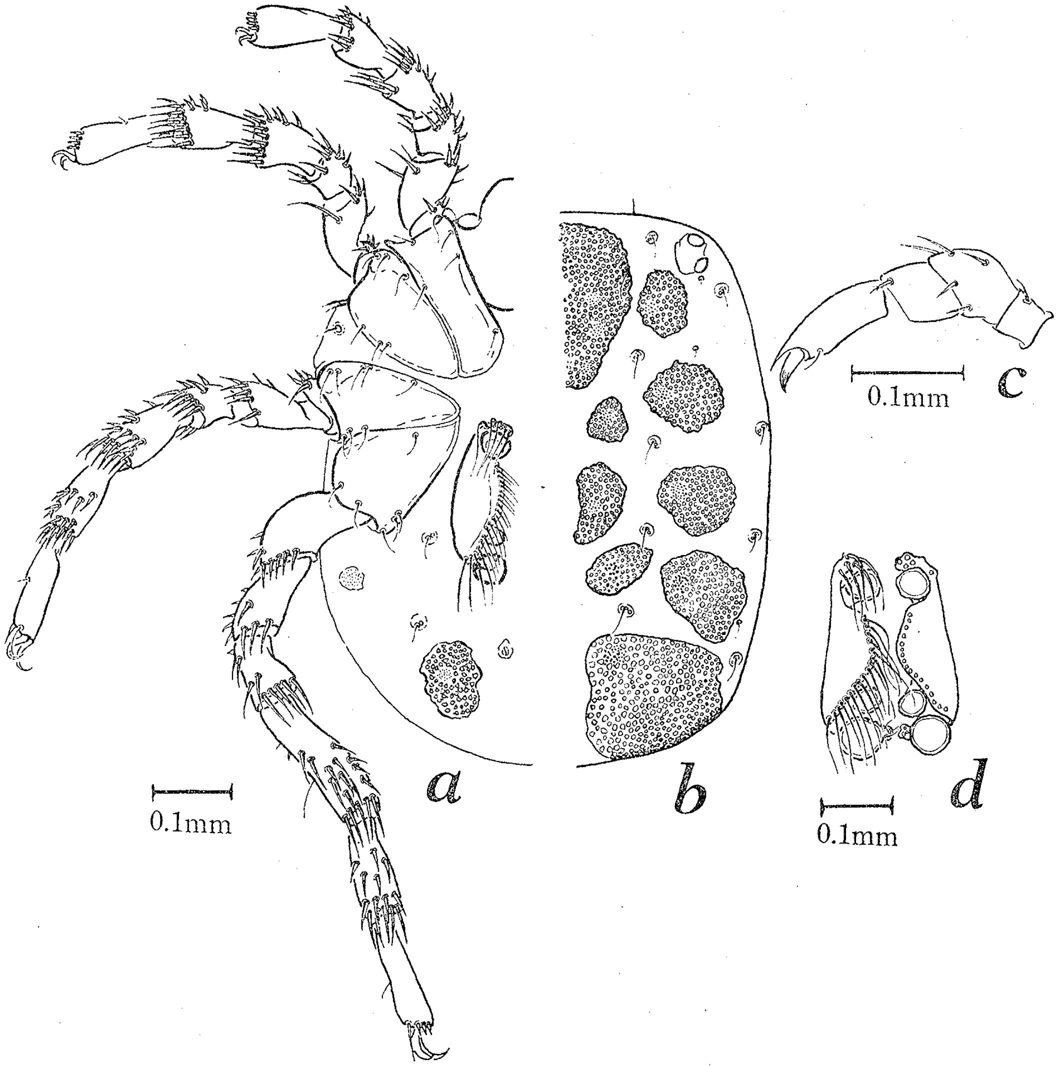

Fig. 3. *Panisopsis* (*Panisoides*) *orientalis* sp. nov.: a, ventral aspect, male; b, dorsal aspect, male; c, left palp, male; d, genital field, female.

*Female* Overall body dimensions one-third greater than the male. Dorsal shield 0.25–0.26 mm long by 0.23–0.26 mm wide. Genital valve with an irregular median margin, two posterior acetabula more exposed, 0.22 mm long by 0.06 to 0.07 mm wide. Acetabula measure 0.04, 0.04, 0.05 mm. Each coxa usually bears 2–4 more setae than in the male. Similar to the male in all other features.

*Specimens* Same locality as in the previous species: 23 males and 3 females collected August 14, 1966 (R. Mitchell) and 1 female, November 18, 1966 (T. Imamura). Holotype male and paratypes to be deposited in the collection of the Biological Institute, Ibaraki University. Paratypes will also be deposited in the Chicago Natural History Museum.

*Remarks* The genital field and plate pattern resemble *Panisopsis* (*Panisoides*) *setipes* more closely than any other known species. These two species form a natural grouping easily separated from other species of *Panisopsis*. But in closer comparison, this new species is different from *P. setipes* in the features of its dorsal plates especially in the frontal plate. The genus *Panisopsis*, as redefined by Cook (1959), was previously known from Europe and North America, and with a dubious record of a larva from New Zealand (Viets, 1956, and Womersley, 1953). This is the first Asian record of the subgenus *Panisoides*.

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